

Introduction to Advanced Web Technologies

SET09103 Advanced Web Technologies

School of Computing
Napier University, Edinburgh, UK
Module Leader: Uta Priss

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Outline

Module Structure

Web 2.0

Learning Outcomes

By the end of this module, students will have an understanding of

- ▶ Mark-up language technology (XML structures and tools).
- ▶ Advanced web technologies (such as AJAX and advanced web security)
- ▶ Searching and pattern matching using regular expressions.
- ▶ Issues and challenges of modern Web Technologies and Web 2.0.
- ▶ Advanced web topics (such as web services and Unicode).

Assessments

This module has two assessments: coursework 1 and coursework 2.
Each counts 50%.

Learning Computer-related Subjects

- ▶ Changing technologies require “life-long learning” .
- ▶ Knowledge about computers is never complete.
- ▶ It is usually better to know where and how to find solutions to arising problems than to memorise solutions that worked in the past.
- ▶ It is useful to maintain logbooks (weblogs) to avoid having to search for the same solution twice.
- ▶ The best computer textbooks are

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- ▶ The best computer textbooks are Google (or similar search engines) and Wikipedia.

Module Structure: Tutorials

- ▶ The learning materials are arranged in exercises simulating real web applications.
- ▶ The learning materials are more technology-oriented than fact-oriented. Students are not required to learn anything “by heart”.
- ▶ All assessments are “open-book” and simulate problems as occurring in real web applications.
- ▶ On-line materials (including search engines) should be used for the coursework - but all resources must be quoted to avoid plagiarism.

Module Structure: Lectures

- ▶ The lectures support the tutorials.
- ▶ The lectures include some structured presentations (for introduction and overview of topics) but also time for class discussion, group exercises and opportunities for asking questions.
- ▶ Due to the nature of the subject matter, the lectures will not be “complete”.
- ▶ Students are encouraged to complement the lecture materials by reading web resources. The module website provides some starting points.

The reason for providing learning materials in a more flexible manner is to encourage students to take ownership and control of their learning.

Getting Help with the Module Materials or Coursework

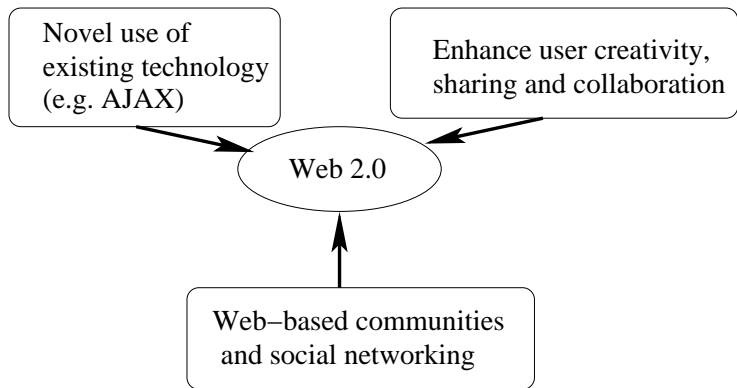
- ▶ Ask questions during the tutorials or lectures.
- ▶ Email questions to the lecturer.
- ▶ Check the module website for FAQs and announcements.
- ▶ Type your question into Google. (Note: use quotation marks around phrases, e.g. “Server-side web languages”).
- ▶ Ask fellow students (but not if the problems relate to the coursework!)
- ▶ Request an appointment with the lecturer.

Using a Non-Napier Webserver

- ▶ As a learning experience, students may want to explore using a webserver outside the university or install a webserver on their laptop.
- ▶ The webserver used needs to support PHP (or Perl/CGI).
- ▶ Linux and Mac OS X: webserver are pre-installed.
- ▶ On a PC: a webserver is easy to install using WAMP, etc.

But: Napier University will not be responsible for any problems (technical, legal, financial or other) that students encounter if using a non-Napier resource.

Web 2.0



Examples: eBay, Wikipedia, del.icio.us, Skype, YouTube.

Web 2.0

How would you define Web 2.0?

Web 2.0: Definition and History

There is no exact definition for Web 2.0.

Older technologies retrospectively named Web 1.0
tend to be static with no user involvement.

Named after the “O’Reilly Media Web 2.0 conference” in 2004.

Overview of some of the technologies

- ▶ Rich Internet applications
(websites that mimic desktop applications)
see Week 7
- ▶ Web services
(API access to remote web servers)
see Week 10
- ▶ And ...

Social software and social networking sites

- ▶ Older: Usenet, Listserv, Talk, Email.
- ▶ Blog, forum, wiki.
- ▶ Networking: friends sites and recommender systems.
- ▶ User generated content and self-description sites.
- ▶ FOAF and XFN: protocols for friends networks.
- ▶ But: privacy concerns.

Examples: MySpace, Facebook, ...

Folksonomies

Collaborative/social + classification/indexing/tagging

- ▶ Shared bookmarking.
- ▶ Bookmarks/tags are annotated with keywords.
- ▶ Visualisations: tag clouds.
- ▶ APLM: protocol for import/export of tag clouds.

XHTML social RSS tagging
blogs Web 2.0 bookmarking XML
web services Javascript AJAX wiki

Examples: Flickr, del.icio.us

Web feeds: RSS and Atom

- ▶ RSS 2.0: Really Simple Syndication.
- ▶ RSS 1.0: RDF Site Summary.
- ▶ Automated updates for frequently changing content: blogs, news, podcasts.
- ▶ Aggregation of content from different sites (Mashups).
- ▶ Used in feed readers, browsers or desktop widgets.



Freemium business model

Venture capitalist Fred Wilson's Blog on 23 March 2006:

Give your service away for free, possibly ad supported but maybe not, acquire a lot of customers very efficiently through word of mouth, referral networks, organic search marketing, etc., then offer premium priced value added services or an enhanced version of your service to your customer base.

Used for Shareware and Open Source software.